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AUTHOR Braverman, Marc T.; D'Onofrio, Carol N.
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ABSTRACT

Mail, telephone, and in-group methods of surveying youth are analyzed and an example of the use of the latter method during the early phase of Project 4-Health (4-H) in California is provided. Issues in data collection are associated with cost, time, survey item comprehension, and participation rates. Project 4-Health is a 5-year tobacco prevention research project conducted by the University of California at Berkeley School of Public Health and the California 4-H program, under funding by the National Cancer Institute. The primary aim of the project is to develop and field test a smokeless tobacco prevention program to be delivered to youth in 4-H clubs throughout the state. In-group surveys of nearly 2,300 4-H members were conducted in the fall of 1986 to assess tobacco use by the target population and social and psychological correlates of tobacco use. Administrators' reports, observations by researchers, and discussions with program participants indicated that: (1) youth experienced moderate problems in reading and comprehending instructions; (2) one-day training for survey administrators proved to be satisfactory; and (3) it was difficult to ensure privacy. (TJH)

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AN ANALYSIS OF OPTIONS FOR COLLECTING SURVEY DATA FROM YOUTH: FINDINGS AND RECOMMENDATIONS FROM PROJECT 4-HEALTH

Marc T. Braverman

University of California, Davis

Carol N. D'Onofrio

University of California, Berkeley

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AN ANALYSIS OF OPTIONS FOR COLLECTING SURVEY DATA FROM YOUTH: FINDINGS AND RECOMMENDATIONS FROM PROJECT 4-HEALTH

Marc T. Braverman
University of California, Davis

Carol N. D'Onofrio
University of California, Berkeley

Introduction

The formats in which data are collected represent an issue of continuing interest for researchers and evaluators. The overriding concern is for the quality of the data, but logistical issues relating to the timing, cost, and effort of data collection are important as well. This paper considers the relative merits of three modes of collecting survey data from young respondents: in-group, telephone, and mail. It also provides data pertaining to the success of group administration in an unusual setting.

Some previous research has appeared comparing the telephone format with either personal interviews or mail surveys (e.g., Groves & Kahn, 1979; Sudman & Bradburn, 1974). Most of these studies have found that none has a clear advantage with regard to data quality; decisions should be based on factors of staffing, available time, logistics, and cost. Hochstim (1967) compared telephone surveys with both mail surveys and personal interviews, and found that all three methods produced highly comparable data. Recent developments in computer-assisted telephone interviewing (CATI) have furthered enhanced the confidence that can be placed in the telephone format. Beckman et al. (1987), however, compared telephone and mail responses for sensitive items and

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found that the telephone format produced significantly fewer extreme responses (i.e., "1"s or "5"s on a Likert scale).

Most of these studies have involved adult respondents: little is known about how these methods may compare when youth are the population of interest. Further, little has appeared on the option of administering surveys in a full-group setting. This seems due to the fact that for the most part, such groupings can be found only for children and adolescents (i.e., classrooms). In studies involving these populations this option has routinely been used, while for studies involving adults this option has not been available. The health education research project that led to this paper was an exception, in that all three options were both available and carefully considered.

Issues in data collection

The decision of which data collection format to use is a complex one, relying on a large number of factors. For surveys involving sensitive topics such as personal lifestyle, the complexity is compounded. Some of the important factors are the following:

- Cost of data collection. The priority of this topic in the decision-making process will vary across projects and, of course, depend on the extent of available resources. Cost might not be a critical concern if adequate outside funding has been obtained for a study, but for many projects the need to control costs is an important consideration when deciding among

methodological options.

- Time needed for data collection. This can range from as little as one day (for a group administration at which all respondents are in attendance) to several weeks or months for telephone or mail surveys. Mail surveys in particular require a long minimum period of time, since three or more mailings must usually be planned, with two or more weeks intervening between each. For methods requiring extended periods of data collection (e.g., two or three months), some concern about data bias may be warranted due to the possibility of historical events occurring in the interval, limiting the comparability of early- and late-arriving data. This may be particularly pertinent for surveys dealing with subjects that attract wide media coverage.

  When allocating time for data collection, it is also wise to consider the need for data preparation. Considerable cleaning of data, including elimination of uninterpretable cases, may be involved when dealing with young participants.

- Training of data collectors. Mail surveys avoid the need to train survey administrators, but at the cost of surrendering much of the potential control over the data collection process. Telephone surveys usually involve training of interviewers, unless the project is contracted to another organization (which can be done

only if the budget allows). Group administrations vary depending on the case: for most studies administration can probably be completed by the researchers themselves: when this is not possible (as in the present study) the training and expertise of survey administrators is a critical concern. Training can present logistical difficulties when administrators are located across broad geographical areas, as was the case in the study described later in this paper.

- Comprehensibility of items for respondents. This is a particularly important consideration when dealing with children and adolescents. It presents most concern when reading is involved rather than oral interview. Careful piloting of items for readability can reduce the problem, but differences in reading ability among youth will make full comprehensibility very difficult to achieve. Mail surveys are weakest in this area, since respondents must work in isolation. In group administrations, a researcher is available to remedy difficulties and answer questions. Telephone interviews are probably strongest here, since reading is not involved. However, this does not entirely resolve the issue of comprehensibility, and pilot testing is still an essential preliminary activity, even in telephone interviews, to ensure that items are clearly understood.

- Maximizing participation rates from the targeted sample. Mail surveys present a major problem in this area, since very high response rates are rare, and survey researchers often plan in terms of a target response rate of 60% - 80%. (These estimates assume the use of multiple mailings.) Some approaches, notably Dillman's (1978), provide the promise for rates over 90%, but most surveys fall far short of this goal. In-group administrations usually involve a percentage of the sample being absent for the data collection, and these individuals must be made up in a future visit (at which some absenteeism might still exist), or through another format, such as phone calls. Telephone surveys are relatively strong for achieving high participation, though provision must be made for the cost and time involved in multiple callback attempts. In all cases, 100% participation is a very difficult target to reach. With the mail and in-group options, reaching non-respondents and absentees frequently involves a change in formats (i.e., from mail to telephone calls), which raises concern for data comparability.
- Susceptibility to demand characteristics. For sensitive data, e.g., regarding the respondent's substance use history or attitudes toward illegal drugs, data validity will depend partly on the honesty and frankness with which the responses are given. Any

setting which increases pressure on the respondent to provide the self-perceived "socially desirable" response may potentially compromise the data. Formats that maximize the psychological sense of trust and privacy will be superior in encouraging honesty. Thus mail questionnaires, which can be filled out completely in private, probably have an advantage (assuming that parents or other household members grant the necessary privacy). Group administrations have the potential problem of a social setting, with both administrators and other respondents present. Telephone interviews may provide an equal or greater potential concern, since they necessitate an individual interaction: whether this effect is tempered by the impersonal electronic connection is an important question for further investigation. It is noteworthy that the isolation of the response setting afforded by the mail questionnaire is double-edged: it presents an advantage with regard to the criterion of respondent honesty but a disadvantage with regard to respondent support (i.e., assisting with the comprehensibility of items) and maximizing the participation rate.

Another aspect to the issue of minimizing social desirability responding is that the in-group setting can provide the opportunity to present secondary forms of support, persuasion, or data validation. For

example, in smoking prevention research the biochemical validation of self-reports (Pechacek et al., 1984) -- involving the collection of saliva samples from respondents -- is possible only in the group setting (barring costly added procedures such as supplemental home visits). The importance of retaining options for validating or supplementing the respondents' data depends on the goals, perspectives, and aims of the individual study.

Table 1 presents a summary of these data collection concerns, providing a comparison of the three formats for each issue.

A research example

These concerns were very relevant to recent data collection decisions made in Project 4-Health, a tobacco prevention research project being conducted by the UC Berkeley School of Public Health and the California 4-H program. Several phases are involved in the project. The in-group format was used for a survey in an early phase. Information from that experience, plus our consideration of the factors listed above, informed our decisions regarding data collection in later phases. What we present in this report is not an experimental comparison of different formats, but the progress of our analysis and decision-making in the course of our project.

Project description. Project 4-Health is an ongoing five-year health education project funded by the National Cancer

Institute. The primary aim is to develop and field test a smokeless tobacco prevention program, to be delivered to youth in 4-H clubs throughout California. The curriculum that is being developed actually provides a comprehensive tobacco focus, jointly addressing both cigarettes and smokeless tobacco. The field test of the program is scheduled to begin in early 1989.

Several of the major preliminary research tasks were to assess the extent of use of all forms of tobacco in the target population, and to determine the psychological and social correlates of such use. Accordingly, a survey of 4-H members was conducted in fall 1986 to measure critical variables related to these questions. The decision about how to collect the survey data incorporated all of the concerns listed above.

Research population and setting. In California, 4-H clubs meet once a month during the school year. Meetings are usually held on weekday evenings, in local schools or community centers. They are attended by 4-H members and club leaders, and usually several parents as well. The sizes of the clubs in our study ranged from 19 to 146, with the median club size being 47 members. Club members range in age from 9 to 19, with most being between 9 and 13 years old.

The leaders of clubs are adult volunteers, usually parents of current or former members. Older teen members are often used in leadership positions as well. Clubs within a county are coordinated at the county level by professional staff members known as 4-H Advisors, who hold academic appointments in

University of California Cooperative Extension.

The sample that was selected to participate in the fall 1986 survey included 77 clubs in 25 counties, with approximately 2,500 youth involved. The requested information included use of cigarettes and smokeless tobacco, beliefs and attitudes toward tobacco and tobacco users, and background demographic information.

In planning the survey, we chose to test the in-club setting for its feasibility as a data collection site. We had several methodological concerns about the suitability of group settings outside of schools, which could be resolved only through empirical trial. These concerns, which involved factors distinguishing the 4-H club setting from classroom settings, included: (i) the wide range of ages among the youth; (ii) the variability in physical sites, in terms of placement of chairs, availability of tables or writing surfaces, overall space, and facilities to keep participants physically separated from non-participants; (iii) the presence of parents and other adults; (iv) the prospects of absenteeism; (v) the potential to create quiet and studious conditions for participants.

The survey was designed for anonymous response, and required about 25-35 minutes for youth to complete. It covered 16 pages and about 110 items. Virtually all items entailed selection from an array of responses rather than generation of information. Attitudinal items were presented in Likert format on a 5-point scale. The Advisors who served as administrators were trained in

a full-day session in October 1986. In addition, a short educational presentation on surveys was developed for presentation to the participants immediately before distribution of the survey, to explain selected concepts and to build motivation for responding honestly.

Measures and potential for feedback. In light of the lack of precedents for this form of data collection, we planned and carried out a careful monitoring scheme to provide information on the success of this approach. The monitoring plan clearly did not have the power of a controlled study comparing two or more formats, but given our priorities and resources we felt it could provide a sufficient amount of information to guide our decisions on data collection for future phases.

The plan included asking each survey administrator to complete a report outline noting the details of each club administration. The form included facts such as dates, time and attendance, information about on-task and off-task behavior, and judgments about clarity of instructions, reactions of adults present, level of interest sustained, and other items. In addition, administrators were asked to document whether each of the following were a problem during administration, and if so, to estimate how many participants were adversely affected: difficulty in reading the survey; confusion about question format; loss of interest in completing the survey; not taking the survey seriously; talking; distractions by survey participants; and distractions by survey non-participants.

In addition to the survey administrator's report, we followed a careful data screening procedure. A minimum number of pages completed was established for inclusion in the final data set. Furthermore, booklets that revealed an obvious pattern of careless responding were discarded. Altogether, 150 of the survey booklets were discarded as a result of this procedure, resulting in a data set of 2298 cases.

The final data set proved to be very comparable with other reports of tobacco use among youth, providing support for the reliability of the data. For example, 23% of our sample reported any lifetime experience with smokeless tobacco, and 4.6% reported use in the last 7 days. These figures are well within the range of estimates produced by local surveys, as noted in the recent Surgeon General's report (U.S. Dept. of Health and Human Services, 1986).

Results: Assessment of the in-group administration procedure

The administrators' reports, combined with our own observations and discussion with program participants, led to the following conlcusions about the in-group administration in our project:

1. Difficulties in reading and comprehension of instructions were a moderate problem in the survey adminstration. Some difficulty in reading was reported for 88% of the clubs, with the club average being 12% of members experiencing this problem. A certain amount of reading difficulty can be expected for any group, but considering the wide diversity of ages represented in

the sample, these figures were not unexpected. The presence of the administrators was clearly needed to resolve as many of these reading problems as possible.

Confusion about question format was slightly more prevalent. 84% of clubs experienced at least some difficulties here, with an average of 14% of the youth in a club being affected. This was primarily due to two sections of the questionnaire, each requiring a branching of responses: youth who had any lifetime experience with cigarettes (and, separately, smokeless tobacco) were directed to one branch, while youth who had no experience were directed to another. Not all survey questionnaires contain this level of complexity, but comprehensibility can be a problem for those which do.

Another problem arose in the analysis of individual forms. A substantial proportion (about 6.1%) needed to be discarded due to incomplete survey forms or suspect patterns of responding. Responses to attitude items by the younger members were, in some cases, relatively flat (all "1"s, or all "5"s, etc.). This led us to infer that toward the end of the questionnaire, these youngsters were either tiring, experiencing some processing difficulty, or not taking the questions seriously.

2. <u>The one-day training for survey administrators proved to be satisfactory</u>. One area of concern before the survey involved how well the 4-H Advisors would be able to implement the survey after a short (one-day) training session, and how the 4-H leaders would respond to requirements for club preparation and scheduling.

However, the club leaders were universally rated as supportive of the activity, and as completing all or most of the necessary preliminary steps correctly. 30% of the survey administrations were rated as "very smooth", 55% were rated as "smooth", 14% were rated as "difficult" and 1% as "very difficult". One of the reasons for this successful outcome is undoubtedly that we explicitly recruited Advisors who were interested in increasing their skills and experience in research activities.

3. Ensuring privacy proved to be difficult in the club setting. The informal, social atmosphere of the club meeting proved difficult to suppress for the survey administration activity. Talking among respondents was a moderate problem. At many sites, survey administrators expended considerable effort to control this tendency.

Distractions proved to be a problem at certain club sites. Most of the distractions stemmed either from the adults present or simultaneous activities for children under age 9 who were not taking the survey. (In the majority of sites, these activities either did not go on or were conducted in a separate room in the facility.) Furthermore, despite planned activities for early finishers specifically intended to maintain quiet conditions, the level of distracting noise tended to be greatest near the end of the administration period as more members completed their forms. All told, the quiet of a classroom test-taking environment proved to be a somewhat unrealistic expectation in this informal, non-classroom setting. This finding was one factor in our later

decision to change data collection formats for later study phases.

4. Absenteeism was a problem in the survey administration. While schools do not experience perfect attendance rates, the compulsory attendance at school makes it a standard that is hard to match elsewhere. 4-H is a voluntary organization, and members and their families are much more likely to skip a meeting if their schedules take them elsewhere. This was a concern of ours prior to the survey, and for the most part it was borne out. The attendance rates at the meetings at which the survey was administered ranged from 40% to 100%, with an average of 68%. Make-ups are particularly difficult in this setting, since meetings are infrequent and sites are geographically separated. The participation rate obtained in the survey compared favorably with many mail questionnaires, but, nevertheless, was not considered totally satisfactory for our research needs.

Decisions relating to future project phases

The in-group adminstration option was implemented mainly because we had no other choices for that phase in the project: the telephone approach was too costly and the mail approach was too problematic with young children in terms of comprehensibility, timelines, and expected response rates. In addition, we wanted to explore the feasibility of the in-group approach for later program phases. Most of the data quality difficulties were resolved through a stringent post-screening of the questionnaires.

However, for the next phase of the project a different set of circumstances was present. The youth would be exposed to an educational program, and tracked over several years, using at least 2 datapoints. Thus, our "research investment" in each child would be higher, and a 20-30% attrition at each measurement period would not be experimentally tolerable. Based on what we learned from the 1986 survey, we decided to collect data via telephone interviews, and contracted with an outside telephone survey center to conduct the calling. As an example of the high costs involved, based on our condition of a computer-assisted, 20-minute interview, the agencies we contacted quoted charges ranging from $30 - $50 per completed interview.

Conclusion

This paper has presented an analysis of three formats for collecting survey data from youth -- mail, telephone, and in-group -- as well as our own project experience regarding an in-group survey administration. The decision among the three must balance the need for rigor with the pragmatics of budget, staff, and available time. When the in-group approach was implemented in an out-of-school setting, several problems arose which increased the need for strict post-processing. The telephone interview is judged to be the best option in terms of ensuring high participation and maximizing comprehensibility of items. Thus it may yield the highest quality data, but it is costly. Completion of the next phase of our project will allow for another dimension to be added to this analysis.

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Table 1

Comparison of Three Data Collection Formats
on Selected Dimensions

Format	Cost	Time Required	Training Data Collectors	Comprehensibility	Participation Rates	Demand Characteristics
In-group	Low	One day, plus makeups	Requires skilled administrators	Moderate: reading skill a concern but support can be available	Moderate: Absenteeism can be a problem	Potentially problematic
Telephone	Very high	Extensive, makeups must be scheduled	Requires skilled interviewers	Good: no reading required	Good, if enough callbacks are allowed	Untested
Mail	Low to moderate	Extensive, three or more mailings must be planned	No data collectors required	Poor: no support for poor readers is a serious problem	Poor: obtaining satisfactory participation is the major problem	Good: format allows for privacy in responding